

# Influenza



## Section 1:

## ABOUT THE DISEASE

### A. Etiologic Agent

Influenza is caused by influenza viruses, which are RNA viruses of the family *Orthomyxoviridae*. There are three basic types of influenza viruses: A, B, and C. Type A is further subtyped by the surface antigens hemagglutinin (H) and neuraminidase (N). Influenza A causes moderate to severe illness and affects all age groups. Influenza A infects animals such as birds and pigs as well as humans, and it has been associated with pandemics. Influenza B affects only humans, primarily children, and generally causes milder disease. Influenza B is more genetically stable than type A, with less antigenic drift. Most cases of influenza C are sub-clinical or in the nature of a mild upper respiratory tract infection, and influenza C is rarely identified in human disease.

### B. Clinical Description

Influenza is a highly infectious viral illness characterized by the abrupt onset of fever, usually 101–102°F, myalgia, sore throat, and nonproductive cough. Onset of fever and symptoms can be so abrupt that patients may be able to recall the exact hour. Gastrointestinal symptoms (nausea, vomiting, and diarrhea) may accompany respiratory symptoms in children. Systemic symptoms and fever usually last 2–3 days, rarely more than 5 days. The severity of the illness depends upon prior exposure to antigenically related influenza viruses. Approximately 50% of infected persons develop classic symptoms of influenza. Recovery is usually rapid, but there may be lingering fatigue for several weeks.

The most frequent complication is pneumonia, usually secondary bacterial pneumonia (e.g., due to *Streptococcus pneumoniae*, *Haemophilus influenzae*, or *Staphylococcus aureus*). Primary influenzal pneumonia is less common. Reye syndrome, impaired liver function, and encephalopathy can occur in children who are receiving aspirin. In infants and young children, complications can include otitis media and toxic-shock syndrome. Other complications include myocarditis, encephalitis, and exacerbation of chronic medical conditions, including chronic pulmonary and cardiac disease. Death is reported in 0.5–1/1,000 cases. Influenza results in an average of 36,000 deaths in the U.S. every year, the majority of which occur in persons  $\geq 65$  years of age. Differential diagnosis includes mycoplasma, adenovirus, respiratory syncytial virus (RSV), rhinovirus, parainfluenza, and *Legionella* infection.

### C. Vectors and Reservoirs

Humans are the only known reservoir of influenza types B and C. There are many hosts for influenza A virus, including humans, other mammals, and fowl. Wild aquatic birds serve as a natural reservoir and can be the source of novel influenza viruses, which can lead to influenza pandemics. In birds, influenza A is an infection primarily involving the gastrointestinal tract. Interspecies transmission of influenza A can result in severe illness in the non-host species. Genetic reassortment of influenza virus can occur in animals infected by more than one strain of influenza A virus, and this may be a source of virus with pandemic potential.

### D. Modes of Transmission

Influenza is transmitted by respiratory droplets, by direct contact with nasopharyngeal secretions, and possibly via the airborne route.

## E. Incubation Period

The incubation period for influenza infection is typically 2 days, with a range of 1–4 days.

## F. Period of Communicability or Infectious Period

Adults are typically infectious from the day before symptoms begin through approximately five days after symptom onset. Children can be infectious for  $\geq 10$  days, and young children can shed virus for up to 6 days before clinical illness onset. Severely immunocompromised persons and some young children can shed virus for weeks or months.

## G. Epidemiology

Influenza occurs throughout the world. In temperate climates, influenza activity peaks from December to March and can continue into May. In tropical areas, influenza occurs year-round, but it may have periodic peaks of activity. A continuous cycle of *antigenic drift* occurs in influenza A and B viruses as antigenic mutants emerge and become predominant. Occasionally, major *antigenic shifts* occur in influenza A viruses, resulting in a novel virus against which humans have no immunity and which can result in pandemic spread in all age groups.

In the U.S., influenza results in an average of 200,000 hospitalizations and 36,000 deaths every year. In Massachusetts, there are an estimated 4,600 hospitalizations and 800 deaths due to influenza annually. Rates of influenza infection are highest among children, but rates of serious illness and death are highest among those  $\geq 65$  years of age and people with underlying medical conditions. There is a documented association between influenza and increased morbidity in “high-risk adults.” Please see the vaccination section on the Centers for Disease Control and Prevention (CDC) website at [www.cdc.gov/flu](http://www.cdc.gov/flu) for the current list of groups defined as high-risk for complications from influenza, as outlined by the CDC and the Advisory Committee on Immunization Practices (ACIP). Influenza in neonates has been associated with considerable morbidity. Excess rates of hospitalizations due to influenza have been documented in otherwise healthy children  $< 5$  years of age, with the highest rates of hospitalization in children  $< 1$  year of age. These rates are comparable to those of people  $\geq 65$  years of age.

|                           |  |
|---------------------------|--|
| <b>Pandemic Influenza</b> | When a new influenza A virus subtype emerges and spreads widely, global pandemics can occur. Pandemics occur at irregular and unpredictable intervals and have the potential to be true public health emergencies. For information about pandemic planning and preparedness in Massachusetts, visit the Massachusetts Department of Public Health (MDPH) website at <a href="http://www.mass.gov/dph/cdc/epii/flu/pandemic.htm">www.mass.gov/dph/cdc/epii/flu/pandemic.htm</a> .   |
| <b>Avian Influenza</b>    | In 1997 in Hong Kong, severe avian influenza A (H5N1) infections occurred in both poultry and in humans. This was the first time a highly pathogenic avian influenza virus was identified as being transmitted directly from birds to humans. In 2003, avian influenza A (H9N7) caused an outbreak of human disease in the Netherlands, mostly characterized by conjunctivitis, but with one death. Beginning in late 2003, outbreaks of highly pathogenic influenza A (H5N1) occurred in poultry in Asia, again resulting in bird to human transmission. For information about avian influenza, visit the CDC avian influenza website at <a href="http://www.cdc.gov/flu/avian/index.htm">www.cdc.gov/flu/avian/index.htm</a> . |

## H. Bioterrorist Potential

This pathogen is not considered to be of risk for use in bioterrorism.



## Section 2:

## REPORTING CRITERIA AND LABORATORY TESTING

### A. What to Report to the Massachusetts Department of Public Health (MDPH)

- ◆ Positive rapid influenza diagnostic test results [including enzyme immunoassay (EIA) and direct fluorescent antibody (DFA) test]; and
- ◆ Positive culture and polymerase chain reaction (PCR) results.

Laboratories and clinicians should immediately report the following by telephone to the MDPH Division of Epidemiology and Immunization at (617) 983-6800 or (888) 658-2850:

- ◆ Suspected avian influenza cases;
- ◆ All deaths related to influenza in children <18 years of age and in pregnant women;
- ◆ Unusually severe cases of influenza;
- ◆ Any confirmed or suspect cases of influenza with encephalopathy;
- ◆ Clusters of influenza-like illness (ILI) in children, pregnant women, or adults; and
- ◆ Any laboratory-confirmed case(s) or cluster of ILI in long-term care facilities or other high-risk institutional settings. (Long-term care facilities should also report outbreaks of ILI to the MDPH Division of Health Care Quality at [800] 462-5540 [accident/incident line]).

#### Definitions

|                                     |   |
|-------------------------------------|---|
| <b>Influenza-Like Illness (ILI)</b> | Fever ( $\geq 100^{\circ}\text{F}$ [ $37.8^{\circ}\text{C}$ ], oral or equivalent) AND cough and/or sore throat (in the absence of a known cause).  |
| <b>Cluster</b>                      | Three or more cases of ILI, occurring within 48–72 hours, in residents who are in close proximity to each other (e.g., in the same area of the facility).   |
| <b>Outbreak</b>                     | A sudden increase of ILI cases over the normal background rate. However, one case of influenza confirmed by any laboratory testing method in a long-term care facility resident is also considered an outbreak. |

*Note: See Section 3B for information on how to report a case or laboratory results.*

### B. Laboratory Testing Services Available

Laboratory testing for influenza virus infection is important because it can guide treatment decisions about the use of antiviral medication; inform infection control procedures; monitor antigenic changes in circulating viruses in order to provide information for the formulation of vaccine for the subsequent season; and identify novel viruses that may arise.

Sensitivity and specificity of any test for influenza might vary by the laboratory that performs the test, the type of test used, and the type of specimen tested. Among respiratory specimens for viral isolation or rapid detection, nasopharyngeal (NP) specimens typically have a higher yield than throat swab specimens. As with any diagnostic test, results should be evaluated in the context of other available clinical information. Please refer to *Attachment A: Diagnostic Tests for Influenza*, found at the end of this chapter, for additional information and availability of diagnostic testing at the MDPH State Laboratory Institute (SLI).

### *Influenza Virus Isolation*

Kits for specimen collection can be ordered by calling the MDPH Division of Epidemiology and Immunization at (617) 983-6800 or (888) 658-2850. These kits include full instructions and throat and NP swabs. The kits should be kept frozen until used.

Please note that the SLI recommends that NP swabs be used for all specimen collection as there is better recovery of virus with NP swabs, and it allows testing for multiple agents (influenza, para influenza, adenovirus, and RSV). RSV testing cannot be done from a throat swab. However, there may be instances when collecting a specimen with the NP swab is not feasible, and therefore, a throat swab is included in each kit. Only one swab should be taken. Please submit the SLI *Specimen Submission Form* (found at the end of this chapter and on the MDPH website at [www.mass.gov/dph/bls/generalform.pdf](http://www.mass.gov/dph/bls/generalform.pdf)) with the words “Respiratory Panel” written in Box #5.

Swab specimens for NP or throat cultures should be obtained  $\leq 48$  hours after symptom onset. No special technique, other than that normally used for cultures, is required to obtain a suitable specimen for an influenza culture. If you are using a NP swab, please see the kit insert for instructions. In the event of an outbreak, specimens should be obtained from 3–4 patients with the most recent onset of symptoms.

**Collect and send culture specimens, with a completed SLI *Specimen Submission Form*, found at the end of this chapter and on the MDPH website at [www.mass.gov/dph/bls/generalform.pdf](http://www.mass.gov/dph/bls/generalform.pdf), to the SLI Virus Isolation Laboratory. If just testing for influenza, the specimens should be mailed as soon as possible, preferably on a Monday, Tuesday, or Wednesday. If an influenza culture specimen is to be shipped on a Thursday or a Friday, or if the respiratory panel is desired, please call a MDPH immunization epidemiologist at (617) 983-6800 or (888) 658-2850 to arrange for specimen submission via courier. Timely transport of specimens to the SLI is of the utmost importance as specimens received more than three days after collection will be deemed unsuitable for testing.**

### *Rapid Detection, Shell Vial Culture (Available through the SLI)*

Rapid detection is helpful for making decisions about the use of antiviral agents. Upon receipt of a swab specimen, the SLI routinely uses a rapid culture technique. If influenza A or B is present, a presumptive diagnosis may be available within 24–48 hours. The SLI will notify the submitting facility if a presumptive positive is obtained. A confirmatory diagnosis, using traditional culture methods, will follow the presumptive test and should be available 4–12 days after receipt of the clinical specimens.

### *Immunofluorescent Antibody Staining (IF) and Enzyme Immunoassay (EIA)*

IF and EIA can detect types A and B influenza virus from nasal swabs, nasal washes, bronchial washes, nasal aspirates, and sputum. The results take 2–4 hours. These tests are not available at the SLI.

### *Polymerase Chain Reaction (PCR)*

PCR can detect influenza A and B RNA from NP and throat swabs, nasal and bronchial washes, nasal aspirates, and sputum. The results are available in 1–2 days. At the SLI, PCR is used as a screening test in certain high-risk settings, after consultation and approval from a MDPH immunization epidemiologist, at (617) 983-6800 or (888) 658-2850.

### *Commercial Rapid Antigen Testing*

Rapid antigen testing (e.g., Directigen Flu A+B, FLU OIA A/B, QuickVue Influenza A & B, Zstatflue, and others) is available through clinical and commercial laboratories and in some provider offices. Rapid antigen testing is done at the SLI only under certain circumstances and with prior approval by a MDPH immunization epidemiologist, at (617) 983-6800 or (888) 658-2850. Rapid antigen tests detect evidence of influenza viruses within 30 minutes. These rapid tests differ in the types of influenza viruses they can detect and in whether they can distinguish between influenza types. Different tests can detect: 1) only influenza A viruses; 2) both influenza A and B viruses, but cannot distinguish between the two types; or 3) both influenza A and B and can distinguish between the two types. The types of specimens acceptable for testing (i.e., throat swab, nasal wash, or nasal swab) also vary by test. The specificity and sensitivity of rapid tests are lower than for viral culture, and they vary by test. Therefore, there are a significant number of false-negative and false-positive tests. Because of the lower sensitivity of the rapid tests, physicians should consider confirming negative and positive tests with viral culture or other means. Further, when interpreting results of a rapid influenza test, physicians should consider the positive and negative predictive values of the test in the context of the level of influenza activity in their community. Package inserts and the laboratory performing the test should be consulted for more details regarding use of rapid diagnostic tests. Additional information concerning diagnostic testing is available on the CDC website at [www.cdc.gov/flu/professionals/labdiagnosis.htm](http://www.cdc.gov/flu/professionals/labdiagnosis.htm).

Despite the availability of rapid diagnostic tests, collecting clinical specimens for viral culture is critical because only culture isolates can provide specific information regarding circulating influenza subtypes and strains. This information is needed to compare current circulating influenza strains with vaccine strains and to formulate vaccine for the coming year. Virus isolates are also needed to monitor the emergence of antiviral resistance and the emergence of novel influenza A subtypes that might pose a pandemic threat.

### *Serology*

A four-fold or greater rise in antibody titer from an acute (collected within the 1<sup>st</sup> week of illness) to convalescent (collected 2–4 weeks after the acute sample) serum sample indicates recent infection with influenza A or B virus. Serologic testing is not available at the SLI.

**Please visit the CDC Influenza Laboratory Diagnosis website at [www.cdc.gov/flu/professionals/labdiagnosis.htm](http://www.cdc.gov/flu/professionals/labdiagnosis.htm) for information on laboratory tests for influenza.**



## Section 3:

**REPORTING RESPONSIBILITIES AND CASE INVESTIGATION****A. Purpose of Surveillance and Reporting**

- ◆ To assess levels of influenza activity in the community.
- ◆ To institute control measures to prevent further spread of the disease in the event of clusters or outbreaks.
- ◆ To identify circulating strains and subtypes of the influenza virus.
- ◆ To identify antiviral drug-resistant strains of influenza viruses.
- ◆ To determine burden of disease of annual influenza epidemics.

**B. Laboratory and Health Care Provider Reporting**

Influenza cases confirmed with diagnostic testing, EIA, DFA, PCR, or viral isolation are reportable to the MDPH. Cases confirmed by acute and convalescent serologic testing should also be reported. *Note: Single unpaired serologic tests should not be reported.*

Laboratories performing examinations on any specimens derived from Massachusetts residents that yield evidence of influenza virus infection shall immediately report such evidence of infection, directly by phone, to the MDPH Division of Epidemiology and Immunization at (617) 983-6800 or (888) 658-2850.

Positive rapid influenza diagnostic test results can be batched and submitted by providers using the *Rapid Influenza Diagnostic Testing Report Form*, a non-name-based reporting form, and faxed on a weekly basis to the MDPH Bureau of Communicable Disease Control, Office of Integrated Surveillance and Informatics Services (ISIS) at (617) 983-6220. Blank *Rapid Influenza Diagnostic Testing Report Forms* and instructions for their completion can be obtained by calling ISIS at (617) 983-6801.

Positive culture and PCR results can be reported by providers and laboratories in the routine laboratory report format. These reports can be faxed to ISIS confidential fax at (617) 983-6813. (Please note that this is a different fax number from the numbers used for submitting the *Rapid Influenza Diagnostic Testing Report Form* described above.)

Some commercial laboratories currently transmit influenza diagnostic testing results electronically directly to ISIS.

Influenza or ILI believed to be unusual or part of an outbreak or cluster should be immediately reported by anyone who is a health care provider or in a supervisory position at a school, daycare, hospital, institution, medical practice laboratory, or other camp to the local board of health (LBOH) and to the MDPH at (617) 983-6800 or (888) 658-2850 (per *105 CMR 300.133* and *134*).

*Note: See Section 2A for specific information on what should be reported.*



## C. Local Board of Health (LBOH) Reporting and Follow-up Responsibilities

### *Reporting Requirements*

Cases of influenza identified through laboratory testing will be reported to the MDPH primarily by health care providers and by laboratories. MDPH regulations (*105 CMR 300.100*) stipulate that each LBOH must immediately report any confirmed case of influenza and clusters or outbreaks of ILI, as defined by the reporting criteria in Section 2A. Confirmed cases of influenza should be immediately reported by fax to ISIS at (617) 983-6813. Clusters or outbreaks of ILI should be immediately reported by calling the MDPH Division of Epidemiology and Immunization at (617) 983-6800 or (888) 658-2850. The MDPH will provide guidance on outbreak control activities. Refer to the *Local Board of Health Timeline* at the end of this manual's *Introduction* section for information on prioritization and timeliness requirements for reporting and case investigation.

### *Case Investigation*

Institution of disease control measures is an integral part of case investigation. It is the responsibility of the LBOH to understand, and if necessary, institute the control guidelines listed in Section 4. In outbreak situations, the LBOH may assist the MDPH and the involved facility with collection of information on cases and vaccination status of staff and residents, assist the facility with vaccination of staff and residents, and facilitate specimen collection and transportation.



## Section 4:

# CONTROLLING FURTHER SPREAD

## A. Isolation and Quarantine Requirements (*105 CMR 300.130*)

Quarantine is not applicable. There are currently no isolation and quarantine regulations pertaining to routine influenza cases. In the case of suspect human influenza cases due to an avian or other novel influenza virus, the MDPH will provide guidelines for isolation and quarantine as required and in consultation with the CDC.

## B. Protection of Contacts of a Case

### *General Control Guidelines*

Stress the importance of hand hygiene, cough etiquette, and respiratory hygiene in preventing the spread of all respiratory illnesses, including influenza (see Section 4D for more information).

### **Influenza Vaccine**

Influenza vaccination is the primary control strategy to prevent the spread and to decrease the complications of influenza. Influenza vaccine is recommended for everyone at risk for complications from influenza, including young children, the elderly, pregnant women, and people living in institutions such as long-term care facilities. Influenza vaccine is also recommended for people who can transmit influenza to those at risk, including household contacts and all health care providers with direct patient contact. When there is an adequate supply of vaccine, influenza vaccine is recommended for anyone who wishes to avoid getting influenza.

There are two kinds of influenza vaccines:

- ◆ Inactivated influenza vaccine is a killed vaccine administered intramuscularly. Inactivated influenza vaccine is recommended for use in any individual six months of age or older who does not have a contraindication.
- ◆ Live attenuated influenza vaccine (LAIV) is administered intranasally and is currently licensed for healthy people 5–49 years of age.

Inactivated influenza vaccine or LAIV may be used to vaccinate most health care personnel. Inactivated influenza vaccine is preferred for vaccinating health care personnel who are  $\geq 50$  years old and health care personnel of any age who have close contact with severely immunosuppressed persons. LAIV may be given to health care personnel  $< 50$  years old who do not have contraindications to receiving this intranasal vaccine. These health care personnel include those who care for immunocompromised patients who do not require care in a protective environment. If health care personnel caring for severely immunocompromised patients in protected environments receive LAIV, then they should not care for these patients for seven days following immunization.

The recommended and eligible groups for influenza vaccine can change depending on new information, on official action of the U.S. Food and Drug Administration (FDA), and on the availability of the influenza vaccine. For the most up-to-date recommendations for the use of influenza vaccine, please visit the MDPH Influenza website at [www.mass.gov/dph/cdc/epii/flu/flu1.htm](http://www.mass.gov/dph/cdc/epii/flu/flu1.htm).

### **Pneumococcal Vaccine**

Because pneumococcal disease is a common complication of influenza, everyone at risk for pneumococcal disease (everyone  $< 2$  years or  $\geq 65$  years of age, and people 2–64 years of age with chronic medical conditions) should receive age-appropriate pneumococcal vaccine.

Contact your local vaccine distributor or your MDPH Regional Office to inquire about the availability of state-supplied pneumococcal vaccine.

### **Vaccine Information Statements (VIS)**

VIS for all vaccines, including pneumococcal vaccine, inactivated influenza vaccine, and LAIV, are available in English and in many other languages on the Immunization Action Coalition website at [www.immunize.org/vis](http://www.immunize.org/vis).

### **Antiviral Medication**

Antiviral medication is an adjunct to influenza vaccine in the prevention of influenza and is also used in the treatment of influenza. Antiviral medication can prevent influenza when administered early after exposure. When administered within 2 days of illness onset, it may shorten the course of illness by 1–2 days.

1. Chemoprophylaxis of persons in communities where influenza viruses are circulating should be considered for:
  - a. Persons at high risk of serious complications who are not vaccinated or cannot be vaccinated. Adults at high risk of serious complications should receive chemoprophylaxis for two weeks following vaccination since it may take that amount of time to mount an immune response. In children aged  $< 9$  years, chemoprophylaxis should occur for 6 weeks after the first dose of vaccine or 2 weeks after the second dose, depending on whether the child is scheduled to receive 1 or 2 doses of vaccine.
  - b. Persons with immunosuppressive conditions who are not expected to mount an adequate antibody response to influenza vaccine.



- c. All persons at high risk of serious influenza complications and who are likely to be exposed to others infected with influenza. For example, when a high-risk person is part of a family or household in which someone else has been diagnosed with influenza, the exposed high-risk person should be given chemoprophylaxis for seven days.
  - d. Unvaccinated health care workers with direct patient care responsibilities.
2. Chemoprophylaxis should also be considered in institutional settings as follows:
- a. All persons who live or work in institutions caring for people at high risk of serious complications of influenza infection should be given antiviral medications in the event of an institutional outbreak. This includes long-term care facilities, hospitals, and other facilities caring for persons with immunosuppressive conditions, such as HIV/AIDS. Vaccinated staff requires chemoprophylaxis only for the two-week period following vaccination. Vaccinated and unvaccinated residents should receive chemoprophylaxis for the duration of institutional outbreak activity. Rapid tests or other influenza tests should be used to confirm influenza as the cause of the outbreak as soon as possible. However, treatment and chemoprophylaxis for residents and staff should be initiated if influenza is strongly suspected and if test results are not yet available.
  - b. Other outbreak control efforts, such as cohorting of infected persons, respiratory hygiene, and other measures should be implemented. For more information, visit the CDC website, Detection and Control of Influenza Outbreaks in Acute Care Facilities, at [www.cdc.gov/flu/professionals/infectioncontrol/healthcarefacilities.htm](http://www.cdc.gov/flu/professionals/infectioncontrol/healthcarefacilities.htm).
3. Guidelines for the Use of Antiviral Medication
- a. To be maximally effective as prophylaxis, antiviral medication must be taken each day for the duration of influenza activity in the community.
  - b. Children aged <9 years who receive influenza vaccine for the first time can require 6 weeks of prophylaxis (i.e., prophylaxis for 4 weeks after the first dose of vaccine and 2 weeks after the second dose).
  - c. Chemoprophylaxis throughout the influenza season or during peak influenza activity might be appropriate for persons at high risk who should not be vaccinated. However, antiviral medications are not without side effects and cost can be a factor. Decisions about long-term antiviral prophylaxis should be made only after careful review of the risks and benefits. Chemoprophylaxis can also be offered to persons who wish to avoid influenza illness. Health care providers and patients should make this decision on an individual basis. Influenza can circulate in the community for 6–8 weeks.
  - d. When outbreaks occur in institutions, administer chemoprophylaxis to all residents, regardless of whether they received influenza vaccine, and continue for a minimum of two weeks. If surveillance indicates that new cases continue to occur, chemoprophylaxis should continue until one week after the end of the outbreak.
  - e. The dosage for each patient should be determined individually.
  - f. Chemoprophylaxis can also be offered to unvaccinated staff that provides care to high-risk patients. Prophylaxis should be offered to all staff, regardless of vaccination status, if the outbreak is caused by a variant strain of influenza not well-matched by the vaccine.
  - g. Chemoprophylaxis can be considered for controlling influenza outbreaks in other closed or semi-closed settings (e.g., dormitories or cruise ships).
  - h. To limit the potential transmission of drug-resistant virus during outbreaks in institutions, measures should be taken to reduce contact between persons taking antiviral medication for treatment and other persons, including those taking chemoprophylaxis.

For additional guidance on the use of antiviral medications, refer to the package inserts and *Prevention and Control of Influenza—Recommendations of the ACIP*, which is updated every year and is available on the CDC website at [www.cdc.gov/mmwr/preview/mmwrhtml/rr5306a1.htm](http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5306a1.htm), and the CDC website, Antivirals, at [www.cdc.gov/flu/professionals/treatment](http://www.cdc.gov/flu/professionals/treatment).

### C. Managing Influenza and Influenza-Like Illness (ILI) in Health Care Settings and Other Institutions

The outbreak control measures described below should be promptly implemented in the event of any one of the following:

- ◆ Influenza is laboratory-confirmed in at least one resident; or
- ◆ More than one resident in the facility or an area of the facility (e.g., separate unit) develops ILI during a one-week period.

#### *Surveillance*

Conduct daily surveillance for respiratory illness, and use influenza testing to identify outbreaks early so that infection control measures can be promptly initiated to prevent the spread of influenza in the facility. To facilitate a systematic approach to responding to ILI in a facility, use the *Influenza-Like Illness (ILI) Line List Form* found at the end of this chapter.

#### *Education*

Educate personnel about the signs and symptoms of influenza and indications for obtaining influenza testing.

#### *Vaccination*

Review the immunization status of patients and staff, and immunize all unvaccinated patients and staff with influenza vaccine as soon as possible.

#### **Patient Vaccination**

Because pneumococcal disease is the most common complication of influenza, take this opportunity to immunize patients at risk for pneumococcal disease with pneumococcal vaccine as well, if they are not already vaccinated.

#### **Staff Vaccination**

Only 40% of U.S. health care workers were vaccinated for influenza in 2003. Influenza vaccination of health care workers reduces:

- ◆ Influenza-related deaths among long-term care facility residents;
- ◆ Overall illness in nursing home residents; and
- ◆ Illness and illness-related absenteeism.

#### *Testing*

Conduct rapid or other diagnostic testing to confirm influenza as the cause of the outbreak. See Section 2B for information about influenza testing.

#### **Antiviral Medication**

Please see Section 4B for additional information about the use of antiviral medications. Institute treatment and chemoprophylaxis with antiviral medication as soon as influenza is suspected. Amantadine or rimantadine can be

used for chemoprophylaxis against type A strains, or a neuraminidase inhibitor for prophylaxis of types A and B. When antiviral agents are used for outbreak control in long-term care facilities, they should be administered to all residents, regardless of immunization status, and to all unvaccinated employees (include all employees if a variant strain is reported that is not well-matched to vaccine).

- ◆ In hospitals, administer antiviral prophylaxis to all patients in the involved unit who are without influenza illness and for whom the antiviral agent is not contraindicated.
- ◆ The drugs should be continued for two weeks after all residents and staff have been vaccinated and as long as one week after the last resident case occurred.
- ◆ The antiviral dose for each resident should be determined based on age, renal function, liver function, and other pertinent characteristics. Pre-approved medication orders or plans to obtain physician's orders on short notice should be in place to ensure that chemoprophylaxis can be started as soon as possible. To limit the potential transmission of drug-resistant virus during outbreaks in institutions, whether in chronic- or acute-care settings or other closed residential settings, measures should be taken to reduce contact as much as possible between persons taking antiviral medications for treatment and other persons, including those taking chemoprophylaxis. For information on antiviral drug-resistant strains of influenza, visit the CDC website at [www.cdc.gov/flu/professionals/treatment/antiviral.htm](http://www.cdc.gov/flu/professionals/treatment/antiviral.htm).
- ◆ For additional guidance on the use of antiviral medications, refer to the package inserts and *Prevention and Control of Influenza—Recommendations of the ACIP*, which is updated every year and is available on the CDC website at [www.cdc.gov/mmwr/preview/mmwrhtml/rr5306a1.htm](http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5306a1.htm), as well as the CDC website, Antivirals, at [www.cdc.gov/flu/professionals/treatment](http://www.cdc.gov/flu/professionals/treatment).

### *Precautions*

When caring for a suspect or confirmed case of influenza, observe both standard precautions and droplet precautions.

#### **Standard Precautions**

(For more information, visit the CDC website at [www.cdc.gov/ncidod/dhqp/gl\\_isolation\\_standard.html](http://www.cdc.gov/ncidod/dhqp/gl_isolation_standard.html).)

- ◆ Wear gloves if hand contact with respiratory secretions or potentially contaminated surfaces is anticipated.
- ◆ Wear a gown if soiling of clothes with a resident's respiratory secretions is anticipated.
- ◆ Change gloves and gowns after each resident encounter, and perform hand hygiene.
- ◆ Decontaminate hands before and after touching a resident, after touching a resident's environment, or after touching a resident's respiratory secretions, whether or not gloves are worn.
- ◆ When hands are visibly soiled or contaminated with respiratory secretions, wash hands with soap (either plain or antimicrobial) and water.
- ◆ If hands are not visibly soiled, use an alcohol-based hand rub for routinely decontaminating hands. Alternatively, wash hands with soap (either plain or antimicrobial) and water.

#### **Droplet Precautions**

(For more information, visit the CDC website at [www.cdc.gov/ncidod/dhqp/gl\\_isolation\\_droplet.html](http://www.cdc.gov/ncidod/dhqp/gl_isolation_droplet.html).)

- ◆ Place resident into a private room. If a private room is not available, place (cohort) suspect influenza residents with other residents suspected of having influenza; cohort confirmed influenza residents with other residents confirmed to have influenza.

- ◆ Wear a surgical or procedure mask upon entering a resident's room, or when working within three feet of a resident. Remove the mask when leaving a resident's room, and dispose of the mask in a waste container.
- ◆ If resident movement or transport is necessary, have the resident wear a surgical or procedure mask, if possible.

### *Confine and Cohort Patients and Limit Floating of Staff*

Keep symptomatic patients in their rooms and restrict them from group activities for five days following onset of symptoms. Cohort the affected unit and minimize staff floating. In an outbreak situation, postpone facility-wide activities until the outbreak has ended.

### *Visitor and Worker Restrictions*

Consider limiting visitors and restricting new admissions. Discourage people with influenza-like symptoms from visiting. Exclude health care workers with symptoms of respiratory infections from work for five days following the onset of symptoms.

### *Hand Hygiene*

For more information and materials to promote hand hygiene, visit the MDPH website at [www.mass.gov/dph/cdc/handwashing/hw.htm](http://www.mass.gov/dph/cdc/handwashing/hw.htm).

In addition to staff, it is important to stress the importance of hand hygiene with patients and visitors.

- ◆ Reinforce the significance of direct contact as a source of transmission as well as the important role of handwashing and the use of alcohol-based hand gels and rubs in limiting transmission of disease with staff, visitors, and patients.
- ◆ Enhance opportunities for handwashing, and provide alcohol-based hand sanitizers.

### *Respiratory Hygiene/Cough Etiquette*

- ◆ Implement a respiratory hygiene program at the first point of contact with a potentially infected person.
- ◆ Post visual alerts instructing patients and persons accompanying them to inform health care personnel if they have symptoms of respiratory illness.
- ◆ Provide tissues for patients and visitors.
- ◆ Provide dispensers with alcohol-based hand rubs or gels.
- ◆ Ensure supplies for handwashing are available where sinks are located.
- ◆ Offer masks to anyone who is coughing.
- ◆ Encourage people who are coughing to sit at least three feet from others.

### *Other Considerations*

In addition to standard and droplet precautions, the following may be considered for long-term care facilities:

- ◆ To maintain the residents' ability to socialize and have access to rehabilitation opportunities during periods when influenza infections are unlikely and no influenza is suspected or confirmed, residents with respiratory symptoms can be permitted to participate in group meals and activities if they can be placed greater than three feet from other residents and can perform respiratory hygiene/cough etiquette. In certain situations, residents may be too high-risk to permit this activity, and ill patients should be restricted from activities.
- ◆ If influenza is widespread in the community, in high-risk areas (e.g., ICUs, nurseries, organ-transplant [especially protective environment] units, and long-term care facilities), you may consider actively screening unvaccinated

health care personnel for symptoms of respiratory infection and exclude those with symptoms for five days following the onset of symptoms.

- ◆ Symptomatic postpartum women should wear masks and should use scrupulous hand hygiene when caring for and nursing their infants.

For more information on managing influenza and ILI in health care settings and long-term care facilities, visit the CDC website at [www.cdc.gov/flu/professionals/infectioncontrol/longtermcare.htm](http://www.cdc.gov/flu/professionals/infectioncontrol/longtermcare.htm) and at [www.cdc.gov/flu/professionals/infectioncontrol/healthcarefacilities.htm](http://www.cdc.gov/flu/professionals/infectioncontrol/healthcarefacilities.htm).

## D. Preventive Measures

### *Vaccines & Antiviral Medication*

|                             |  |
|-----------------------------|--|
| <b>Influenza Vaccine</b>    | Vaccination remains the single most important strategy for preventing influenza. There are two licensed influenza vaccines: 1) inactivated influenza vaccine administered intramuscularly; and 2) live, attenuated influenza vaccine (LAIV) administered intranasally. Please see Section 4B for information and recommendations on the use of influenza vaccine.  |
| <b>Pneumococcal Vaccine</b> | Because pneumococcal disease is a common complication of influenza, everyone at risk for pneumococcal disease (everyone $\geq 65$ years of age and younger people with chronic medical conditions) should receive one dose of pneumococcal polysaccharide vaccine (PPV23) as well, if they are not already vaccinated.   |
| <b>Antiviral Medication</b> | Antiviral medications are an adjunct to, not a substitute for, influenza vaccination. They can be used to prevent as well as to treat influenza. For additional guidance on the use of antiviral medications, refer to the package inserts and <i>Prevention and Control of Influenza—Recommendations of the ACIP</i> , available on the CDC website at <a href="http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5306a1.htm">www.cdc.gov/mmwr/preview/mmwrhtml/rr5306a1.htm</a> , as well as the CDC website, Antivirals, at <a href="http://www.cdc.gov/flu/professionals/treatment">www.cdc.gov/flu/professionals/treatment</a> . |

### *Preventing Spread of Influenza in Childcare and School Settings*

- ◆ Display posters and distribute flyers to staff and families emphasizing handwashing, cough etiquette, and other preventive measures.
- ◆ Remind children and care givers about handwashing. Encourage care providers and children to wash their hands with soap and water for 15–20 seconds when hands are visibly soiled, or to use an alcohol-based rub or gel when soap and water are not available, after blowing their nose, before meals, and after using the bathroom. Ensure sink locations and restrooms are stocked with soap and paper towels or working hand dryers.
- ◆ Remind children and staff to cover their noses and mouths when sneezing or coughing, preferably not with their hands. Make sure tissues are available. Remind children and staff to wash their hands or use alcohol-based hand rub as soon as possible if they have coughed or sneezed on their hands.
- ◆ Keep the environment clean and make sure supplies are available. Clean frequently touched surfaces and commonly shared items with an Environmental Protection Agency (EPA)-registered disinfectant labeled for activity against bacteria and viruses, an EPA-registered hospital disinfectant, or chlorine bleach/hypochlorite solution, following label instructions. If generic chlorine bleach is used, mix  $\frac{1}{4}$  cup chlorine bleach with one gallon of cool water. Keep disinfectants out of reach of children.

- ◆ Observe children for respiratory illness. Notify parents if a child develops a fever (100°F or higher under the arm, 101°F by mouth, or 102°F rectally) and chills, cough, sore throat, headache, or muscle aches. Send the child home, if possible, and advise the parent to contact the child's doctor.
- ◆ Encourage parents to keep their sick children at home, and encourage sick staff to stay at home until they have been without fever for 24 hours.
- ◆ Identify children and staff who are at high risk, and encourage them to get vaccinated.
- ◆ Consider antiviral medication for high-risk individuals. See Section 4B for more information.

### *Preventing Spread of Influenza in the Community*

Advise individuals of the following:

- ◆ Wash their hands with soap and warm water or use an alcohol-based hand rub or gel frequently, especially after visiting public places or being in contact with anyone with a cold or the flu. Avoid touching the eyes, nose, and mouth.
- ◆ Cover the mouth when coughing or sneezing. Turn their heads (never cough in the direction of someone else), and cough or sneeze into a tissue. If tissues are not available, cough or sneeze into the inside of the elbow.
- ◆ Do not take young children, those with immune system problems, or the chronically ill into large crowds unnecessarily when the flu is in the community.
- ◆ Avoid close contact (e.g., holding, hugging, and kissing) with anyone who has a cold or the flu. Be very careful with children as they are most likely to become sick with the flu.
- ◆ Stay home from work or school, and avoid public activities for at least five days (seven for children) if they have symptoms of the flu.
- ◆ Do not share items that can spread germs and viruses, like drinking cups, straws, or other items that are put in the mouth.
- ◆ Clean things that are touched often in the household, in the classroom, and in childcare settings (e.g., door or refrigerator handles, phones, water faucets).
- ◆ Consider antiviral medication for high-risk individuals. See Section 4B for more information.

No data are available to show that the use of surgical or procedure masks prevents the spread of influenza.

Symptomatic persons who cannot stay at home should consider wearing a mask in public places when they may have close contact with other persons. No recommendation can be made at this time for mask use by asymptomatic persons, including those at high risk for complications, to prevent exposure to influenza. If unvaccinated high-risk persons decide to wear masks during periods of increased respiratory illness activity in the community, it is likely they will need to wear them anytime they are in a public place and when they are around household members.

### *Advice for Caregivers of Children Less Than Six Months Old*

Recent studies have shown that children <2 years old—even healthy children—are more likely than older children to end up in the hospital with serious complications if they get influenza (the flu). These complications can include pneumonia, dehydration, worsening of long-term medical problems like heart disease or asthma, encephalopathy, sinus problems, and ear infections. In rare cases, complications from the flu can lead to death.

Because young children are at increased risk of getting severe illness from influenza, the CDC recommends that all children 6–23 months old get a flu shot. However, flu vaccine is not approved for use in children <6 months of age. Also, influenza antiviral medications (special drugs used to treat and prevent the flu) are not approved for use in children <6 months old. Because these children cannot get a vaccine or antiviral medications, but are at higher risk for serious flu-related complications, safeguarding them from influenza virus infection is especially important.



**Get Vaccinated**

Individuals who live with or care for an infant <6 months of age should receive influenza vaccine.

**Practice Good Health Habits**

Certain good health habits can help prevent the spread of respiratory illnesses like the flu. Advise individuals to protect themselves and their infant by following these steps routinely:

- ◆ Cover the nose and mouth with a tissue when they cough or sneeze—throw the tissue away after they use it.
- ◆ Wash their hands often with soap and water, especially after they cough or sneeze. If they are not near water, they can use an alcohol-based hand sanitizer.
- ◆ Keep themselves and their baby away from people who are sick, as much as they can.
- ◆ Try not to touch the eyes, nose, or mouth, since germs can spread this way.

*Advice for Caregivers Who Get the Flu*

If caregivers live with or care for an infant <6 months of age, they should follow the precautions below to help prevent the spread of illness to the infant.

**Remember How the Flu Spreads**

The main way that flu spreads is in respiratory droplets from coughing and sneezing. This can happen when droplets from a cough or sneeze of an infected person are propelled (generally up to three feet) through the air and infect someone nearby. The flu may also spread through indirect contact with respiratory droplets.

**Follow These Steps**

If caregivers get flu-like symptoms, such as headache, tiredness, cough, sore throat, runny or stuffy nose, or body aches, especially associated with fever, they should follow the precautions below:

- ◆ Check with their health care provider. (If they have influenza, their doctor may prescribe antiviral medications for them.)
- ◆ Try to minimize contact with the infant as much as possible.
- ◆ Cover the nose and mouth with a tissue when sneezing or coughing, and put the used tissue in a wastebasket.
- ◆ Wash the hands or use an alcohol-based hand rub frequently and as soon as possible if they have sneezed or coughed on their hands.
- ◆ Before engaging in any activity within three feet of an infant (including feeding, changing, rocking, reading to your child), put on a surgical mask (available in most drugstores) and thoroughly wash and dry their hands. (Information about hand hygiene can be found on the CDC website at [www.cdc.gov/flu/protect/stopgerms.htm#GoodHealthHabits](http://www.cdc.gov/flu/protect/stopgerms.htm#GoodHealthHabits).) Individuals should not remove the surgical mask until they are done and they have put their infant down.
- ◆ Take these precautions for the first seven days of illness (beginning the first day you notice symptoms).

**Be Watchful**

Observe the infant closely for symptoms of respiratory illness. If the child develops a fever (100°F or higher under the arm, 101°F orally, or 102°F rectally), respiratory symptoms, or is less responsive than normal, contact the child's doctor.

## Antivirals

Antiviral medications may be considered for household contacts of infants in certain situations. Please see Section 4B for information about antiviral medications.

Resources, including brochures, posters, and fact sheets to educate the public and providers about hand hygiene and respiratory hygiene are available on the MDPH website at [www.mass.gov/dph/topics/handwashing.htm](http://www.mass.gov/dph/topics/handwashing.htm) and on the CDC website, Stopping the Spread of Germs at Home, Work & School at [www.cdc.gov/flu/protect/stopgerms.htm](http://www.cdc.gov/flu/protect/stopgerms.htm).

Please refer to the most current versions of the ACIP statement on influenza (updated annually and available on the CDC website at [www.cdc.gov/mmwr/preview/mmwrhtml/rr5306a1.htm](http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5306a1.htm)), MDPH's *Immunization Guidelines*, and MDPH's *Massachusetts Immunization Program State-Supplied Vaccines and Patient Eligibility Criteria* for recommended schedules, groups recommended, and groups eligible to receive state-supplied vaccine. These documents can be obtained from the MDPH website at [www.mass.gov/dph](http://www.mass.gov/dph).

**An Influenza Public Health Fact Sheet is available from the MDPH Division of Epidemiology and Immunization or on the MDPH website at [www.mass.gov/dph](http://www.mass.gov/dph). Click on the “Publications and Statistics” link, and select the “Public Health Fact Sheets” section under “Communicable Disease Control.”**



## ADDITIONAL INFORMATION

### Case Definition

Definitive diagnosis of influenza requires laboratory confirmation associated with signs and symptoms. Case definitions for ILI vary depending on the purpose. The CDC uses the case definition of fever  $\geq 101^{\circ}\text{F}$  and cough and/or sore throat in its sentinel physician surveillance system for ILI.

This case definition is provided for your information only and should not affect the investigation or reporting of a case that fulfills the criteria in Section 2A. (The CDC and the MDPH use the CDC case definitions to maintain uniform standards for national reporting.) For reporting a case to the MDPH, always use the criteria outlined in Section 2A.

*Note: The most up-to-date CDC case definitions are available on the CDC website at [www.cdc.gov/epo/dphsi/casedef/case\\_definitions.htm](http://www.cdc.gov/epo/dphsi/casedef/case_definitions.htm).*



## REFERENCES

- “2004–05 Interim Guidance for the Use of Masks to Control Influenza Transmission.” Centers for Disease Control and Prevention. August 8, 2005.  
<[www.cdc.gov/flu/professionals/infectioncontrol/maskguidance.htm](http://www.cdc.gov/flu/professionals/infectioncontrol/maskguidance.htm)>.
- American Academy of Pediatrics. [Influenza.] In: Pickering L.K., ed. *Red Book: 2003 Report of the Committee on Infectious Diseases, 26<sup>th</sup> Edition*. Elk Grove Village, IL, American Academy of Pediatrics; 2003: 382–390.
- CDC. *Epidemiology and Prevention of Vaccine-Preventable Diseases, 8<sup>th</sup> Edition*. Atkinson W., Hamborsky J., Wolfe S., eds. Washington DC, Public Health Foundation, 2004.
- CDC. “Prevention and Control of Influenza—Recommendations of the ACIP.” *MMWR*. 2004; 53(RR-06).  
<[www.cdc.gov/mmwr/preview/mmwrhtml/rr5306a1.htm](http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5306a1.htm)>.
- “Communicable Disease Surveillance and Response. Cumulative Number of Confirmed Human Cases of Avian Influenza A(H5N1).” World Health Organization. October, 25 2004.  
<[www.who.int/csr/disease/avian\\_influenza/country/cases\\_table\\_2004\\_10\\_25/en](http://www.who.int/csr/disease/avian_influenza/country/cases_table_2004_10_25/en)>.
- Fukuda K., Levandowski R.A., Bridges C.B., Cox N.J. “Inactivated Influenza Vaccines.” In *Vaccines, 4<sup>th</sup> Edition*. Plotkin S.A., Orenstein W.A., eds. USA, Elsevier Inc: 339–388.
- “Guidance for Prevention and Control of Influenza in the Peri- and Postpartum Settings.” Centers for Disease Control and Prevention. August 8, 2005.  
<[www.cdc.gov/flu/professionals/infectioncontrol/peri-post-settings.htm](http://www.cdc.gov/flu/professionals/infectioncontrol/peri-post-settings.htm)>.
- Heymann D.L., ed. *Control of Communicable Disease, 18<sup>th</sup> Edition*. Washington DC, American Public Health Association, 2004.
- “Immunization Update 2005 Scripts and Slides.” Centers for Disease Control and Prevention. August 4, 2005.  
<[www.cdc.gov/nip/ed/ImUpdate2005/imzupdate05-slides&scripts.htm](http://www.cdc.gov/nip/ed/ImUpdate2005/imzupdate05-slides&scripts.htm)>.
- “Infection Control Measures for the Prevention and Control of Influenza in Acute-Care Facilities.” Centers for Disease Control and Prevention. November 16, 2005.  
<[www.cdc.gov/flu/professionals/infectioncontrol/healthcarefacilities.htm](http://www.cdc.gov/flu/professionals/infectioncontrol/healthcarefacilities.htm)>.
- “Infection Control Measures for Preventing and Controlling Influenza Transmission in Long-Term Care Facilities.” Centers for Disease Control and Prevention. December 23, 2005.  
<[www.cdc.gov/flu/professionals/infectioncontrol/longtermcare.htm](http://www.cdc.gov/flu/professionals/infectioncontrol/longtermcare.htm)>.
- “Influenza Antiviral Medications: 2005–06 Interim Chemoprophylaxis and Treatment Guidelines.” Centers for Disease Control and Prevention. January 14, 2006.  
<[www.cdc.gov/flu/professionals/treatment/0506antiviralguide.htm](http://www.cdc.gov/flu/professionals/treatment/0506antiviralguide.htm)>.

MDPH. *Regulation 105 CMR 300.000: Reportable Diseases, Surveillance, and Isolation and Quarantine Requirements*. MDPH, Promulgated November 4, 2005.

“Preventing the Spread of Influenza (the Flu) in Child Care Settings: Guidance for Administrators, Care Providers, and Other Staff.” Centers for Disease Control and Prevention. February 25, 2004.  
<[www.cdc.gov/flu/professionals/infectioncontrol/childcaresettings.htm](http://www.cdc.gov/flu/professionals/infectioncontrol/childcaresettings.htm)>.

“Protecting Against the Flu: Advice for Caregivers of Children Less Than 6 Months Old.” Centers for Disease Control and Prevention. August 17, 2005.  
<[www.cdc.gov/flu/protect/infantcare.htm](http://www.cdc.gov/flu/protect/infantcare.htm)>.

“Recent Avian Influenza Outbreaks in Asia and Europe.” Centers for Disease Control and Prevention. January 30, 2006.  
<[www.cdc.gov/flu/avian/outbreaks/asia.htm](http://www.cdc.gov/flu/avian/outbreaks/asia.htm)>.

## ATTACHMENTS

*Attachment A: Diagnostic Tests for Influenza*

# Attachment A

## Diagnostic Tests for Influenza<sup>1</sup>

| Diagnostic Test Type  | Influenza Types Detected                                  | Time for Results                           | Performed at the MDPH State Laboratory Institute (SLI)                 |
|---|---|--|--|
| Viral culture by Hemadsorption test (Had)   | Influenza   | 4–10 days                                  | Yes  |
| Shell Vial Culture  | A and B   | 48 hours                                   | Yes  |
| Viral detection by haemagglutination-inhibition test (HI)   | Subtype (H and N types of Influenza A, Influenza B types) | ≤10 days                                   | Yes  |
| Polymerase Chain Reaction (PCR) <sup>2</sup>  | A or B  | ≤24 hours                                  | Yes, only under special circumstances <sup>3</sup>                     |
| Serology <sup>4</sup>   | A or B  | ≥2 weeks                                   | No   |
| <b>Rapid Tests</b> <ul style="list-style-type: none"> <li>Rapid Antigen Detection</li> <li>Direct Fluorescent Antibody (DFA)</li> <li>Enzyme Immunoassay (EIA/ELISA)</li> </ul> | A, B, A/B<br><br>A or B<br><br>A or B                     | 30 minutes<br><br>2–4 hours<br><br>2 hours | Yes, only under special circumstances <sup>3</sup><br><br>No<br><br>No |

<sup>1</sup> Laboratory results diagnostic of influenza infection are reportable to MDPH.

<sup>2</sup> Used as a screening test in certain high-risk settings only.

<sup>3</sup> Needs approval from a MDPH immunization epidemiologist—(617) 983-6800 or (888) 658-2850.

<sup>4</sup> Only paired sera (acute and convalescent specimens) indicating a four-fold rise in titers. Single sera specimen is not able to confirm acute infection.



## **FORMS & WORKSHEETS**

*Influenza*



# Influenza

---



## LBOH Action Steps

*This form does not need to be submitted to the MDPH with the case report form. It is for LBOH use and is meant as a quick-reference guide to influenza case investigation activities.*

LBOH staff should follow these steps when influenza is suspected or confirmed in the community. For more detailed information, including disease epidemiology, reporting, case investigation, and follow-up, refer to the preceding chapter.

### Reporting

- ☐ Notify the MDPH Division of Epidemiology and Immunization at (617) 983-6800 or (888) 658-2850 to report any confirmed case(s) of influenza or clusters or outbreaks of ILI occurring in any setting.
- ☐ Remind long-term care facilities to report outbreaks of ILI to the MDPH Division of Health Care Quality at (800) 462-5540.

### Case Investigation

- ☐ In outbreak situations, the LBOH may assist MDPH and the involved facility with collection of information on cases and vaccination status of staff and residents, assist the facility with vaccination of staff and residents, and facilitate appropriate clinical specimen collection and submission to the SLI.

### Prevention and Control

- ☐ Identify high-risk individuals and susceptible individuals, including those with medical or religious exemptions.
- ☐ Vaccinate susceptible individuals (influenza and pneumococcal vaccine when indicated).
- ☐ Encourage hand hygiene, respiratory hygiene, and cough etiquette.
- ☐ Consider antiviral medication.
- ☐ Conduct surveillance for two incubation periods.

### Managing Influenza in Health Care Settings and Other Institutions

In addition to the prevention and control measures described above:

- ☐ Notify and educate staff and patients.
- ☐ Test symptomatic individuals.
- ☐ Consider antiviral medication.
- ☐ Observe standard and droplet precautions.
- ☐ Confine/cohort patients, and limit floating of staff.
- ☐ Consider restriction of ill visitors and personnel.
- ☐ Emphasize hand hygiene, respiratory hygiene, and cough etiquette.

## **Managing Influenza in Childcare and School Settings**

In addition to the prevention and control measures described above:

- ☐ Surveillance for new cases.
- ☐ Education of staff and students.
- ☐ Vaccination of high-risk individuals.
- ☐ Consider antiviral medication for high-risk individuals.
- ☐ Emphasize hand hygiene, respiratory hygiene, and cough etiquette.
- ☐ Encourage ill individuals to stay home.